

Patent claims

1. A device for the delivery of a predosed quantity of a drug in dissolved or suspended form as a liquid jet or as an aerosol of droplets by delivery of the predosed quantity under pressure by a dispensing facility (29), comprising
 - 5 - an elastic element (15, 16) for the storage of a predetermined quantity of energy
 - a mobile element (6) to which the predetermined quantity of energy can be fed and
 - 10 which can expose the dosed fluid quantity to a predetermined increase in pressure,

characterized in that

 - means (4, 12, 13, 14, 18, 19, 21, 22, 23, 27) for the respective introduction and
 - 15 removal of a container cartridge (10) containing the drug into and from an accommodation chamber (30) lying in the inside of the device and
 - means for the feeding of the pressurized drug to a dispensing facility (29) firmly connected to the container cartridge (10) are provided.
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2. A device according to claim 1, characterized in that the container cartridge (10) can be introduced into the accommodation chamber (30) via an opening (4) in the housing wall (26) of the device.
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3. A device according to claim 1, characterized in that the container cartridge (10) can be introduced directly into its end-position in the device.
4. A device according to claim 1, characterized in that the container cartridge (10), after its introduction into the housing opening (4), can be transferred into its end-position by a
- 30 transport means, in particular a transport carriage (14).

5. A device according to claim 1, characterized in that a part of the housing wall is a constituent of a removable grip (18) which is provided with a holding means (12) for accommodating a container cartridge (10).

- 5 6. A device according to claim 1, characterized in that the device has a housing lower section (3), one end of which defines the bottom-side end of the device, a housing middle section (2b) housed rotatable against the housing lower section (3) and a housing upper section (2a), designed vertically swivellable or eccentrically rotatable relative to the housing middle section (2b), with the means (30) for accommodating the container cartridge (10), wherein the end which, in the closed state of the device, is not connected to the housing middle section defines the top-side end of the device.
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7. A device according to claim 6, characterized in that the container cartridge (10) can be introduced into a bore (30) passing through the housing upper section (2a).

- 15 8. A device according to claim 7, characterized in that there are developed on the bore (30) one stop or more stops beyond which the container cannot be pushed and/or means are developed for guiding the container cartridge (10) optionally up to the stop or stops.
- 20 9. A device according to claim 1, characterized in that the elastic element for the storage of a predetermined quantity of energy is a helical spring (16) which is part of a locking clamping means and via which a drive flange (33), which is connected to a pressure piston (6), is moved vertically.
- 25 10. A device according to claim 9, characterized in that the compression spring (16) is located in a compression spring housing (31) which is housed rotatable in the housing middle section and is connected to the housing lower section, the compression spring (16) being tensioned via a gear system when the housing lower section (3) and/or the compression spring housing (31) is rotated against the housing middle section (2b) and moves the drive flange bottom-side and the compression spring remains in the tensioned position via a locking member (34), until a relaxation occurs due to the pressing of the release key (35) connected to the locking member (34).
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11. A device according to claim 6, characterized in that blocking means are developed for blocking the release key (35) that are coupled to the closure mechanism between the housing upper section and housing lower section.
- 5 12. A device according to claim 11, characterized in that the blocking means comprise a mobile locking bolt (50) which prevents the horizontal release movement of the locking member (34) and/or of the release key (35).
- 10 13. A device according to claim 1, characterized in that the device has closure arrest means (54, 55, 56) which prevent the housing upper section (2a) from being opened as long as the compression spring (16) is not tensioned, and the pressure piston (6) thus projects into the housing upper section (2a).
- 15 14. A device according to claim 13, characterized in that the closure arrest means comprise a mobile arrester bolt (56) which prevents the release of the closure key 54 until the pressure piston (6) is in the position defined by the tensioned spring (16).
- 20 15. A dimensionally stable, manually not deformable container cartridge (10) with a base part and a top part, the top part being formed by a dispensing facility (29) from which a stock cylinder (40) for accommodating a drug in dissolved or suspended form leads to the bottom of the container cartridge, which is closed by sealing means (59) not indestructibly removable from the container cartridge and/or a container punch (39) movable into the stock cylinder (40), sealing and not projecting outwards beyond the bottom area of the container cartridge, and/or by a rigid baseplate (63).
- 25 16. A container cartridge according to claim 15, characterized in that the dispensing facility (29) is closed to the outside by a sealing means (58).
- 30 17. A container cartridge according to claim 15, characterized in that the dispensing facility (29) is held in the top-side opening of the stock cylinder (40) by at least one holder (60).

18. A container cartridge according to claim 15, characterized in that the dispensing facility (29) and/or the holder (60) is (are) held in the top-side opening of the stock cylinder (40) by gluing, welding, ultra[sonic] welding, crimping and/or a screw cap.
- 5 19. A container cartridge according to claim 15, characterized in that the container punch (39) is a piston (container piston) or preferably a ball (container ball).
20. A container cartridge according to claim 15, characterized in that the stock cylinder has a filling capacity of at most 100 μl .
- 10 21. A container cartridge according to claim 15, characterized in that the stock cylinder has a filling capacity of at most 15 μl .
- 15 22. A container cartridge according to claim 15, characterized in that the dispensing facility (29) is a nozzle with an opening.
23. A container cartridge according to claim 15, characterized in that the dispensing facility (29) is a nozzle with at least two openings.
- 20 24. A container cartridge according to claim 23, characterized in that the channels leading to the at least two openings are oriented to each other in the direction of the openings, so that liquid jets or aerosol clouds dispensed from the openings collide with each other.
- 25 25. A container cartridge according to claim 15, characterized in that the dispensing facility (29) has filter means (45).
- 30 26. A container cartridge according to claim 15, characterized in that the dispensing facility (29) consists of at least two parts, each with at least an essentially flat surface, via which the two parts are connected to each other to form a unit, at least one of the surfaces having a microstructure with channels which form at least one liquid inlet into the unit and at least one liquid outlet from the unit, optionally filter means and/or one or more plenum chambers.

27. A container cartridge according to claim 15, characterized in that the container cartridge is not plastically deformable up to a pressure difference between the inside of the stock cylinder and the external surroundings of at least 49 bar.
- 5 28. A container cartridge according to claim 15, characterized in that the container has a head region, a shoulder and a belly region, the cross-section of the belly region vertical to the longitudinal axis being larger than the cross-section of the head region vertical to the longitudinal axis.
- 10 29. A container cartridge according to claim 15, characterized in that the container has a baseplate which has the largest cross-section of the container vertical to the longitudinal axis.
- 15 30. A container cartridge according to claim 15, characterized in that one part of the container has a cross-section, vertical to the longitudinal axis, which is not rotation-symmetrical.
- 20 31. A system for the delivery of a predosed quantity of a medico-therapeutically and/or medico-prophylactically effective substance in dissolved or suspended form as a liquid jet or an aerosol of droplets by delivery of the predosed quantity of the drug under pressure by a dispensing facility (29), comprising a device according to claim 1 as well as at least one container cartridge according to one of claim 15.
- 25 32. A system according to claim 31, characterized in that the accommodation chamber (30) and the container cartridge (10) are developed to fit precisely.
- 30 33. A system according to claim 31, characterized in that it is a needleless injector.
34. A system according to claim 31, characterized in that it is an inhalation device.
35. A system according to claim 31, characterized in that it is an atomizer for the application of a spray to the surface of the eye.